

California Leadership and Innovation in Clean Technologies

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Why Greentech?

- Urbanization

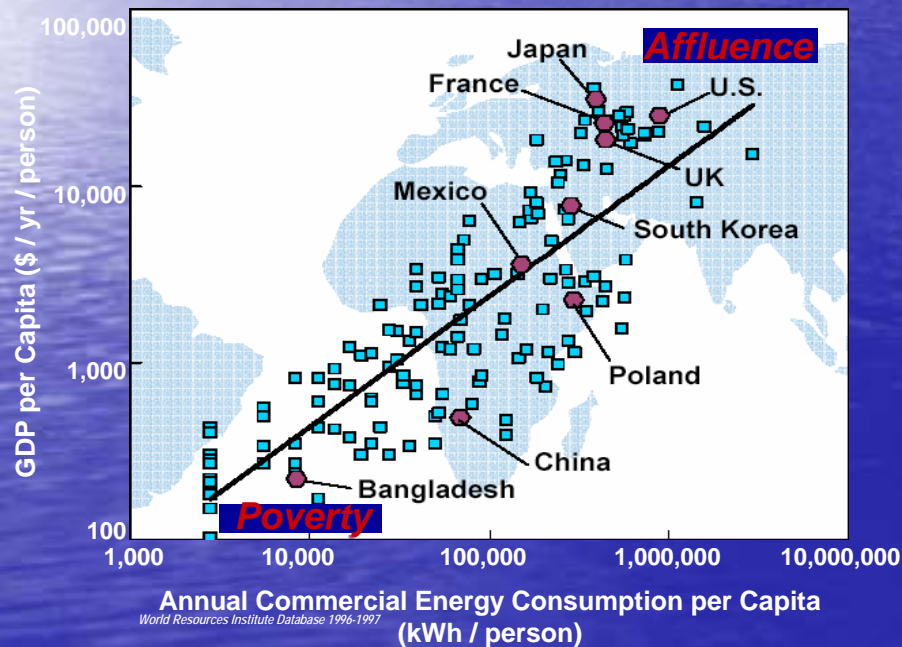


	<u>1950</u>	<u>2005</u>	<u>2050</u>
"Megacities" — Population of 10M+:	2	18	>400

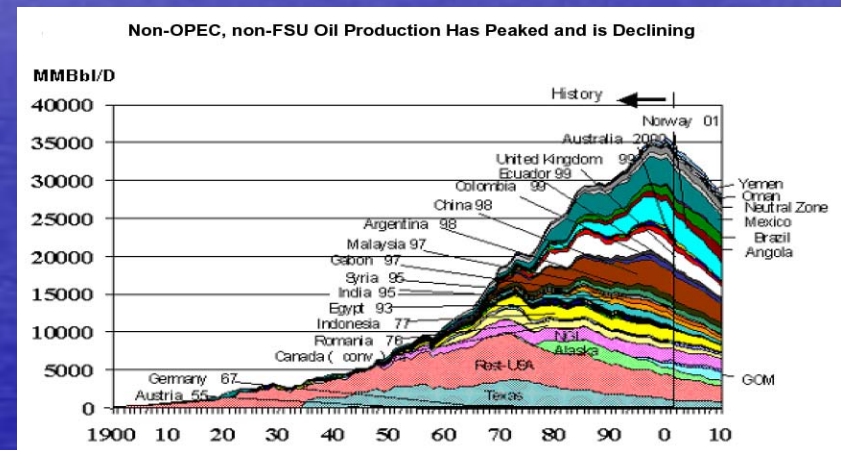
Why Greentech?

- Energy Supply and Demand

Surging Demand



Finite Petroleum Supply

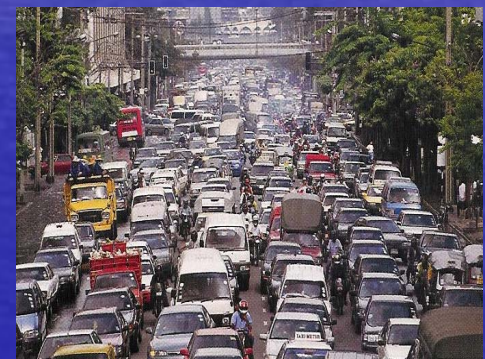
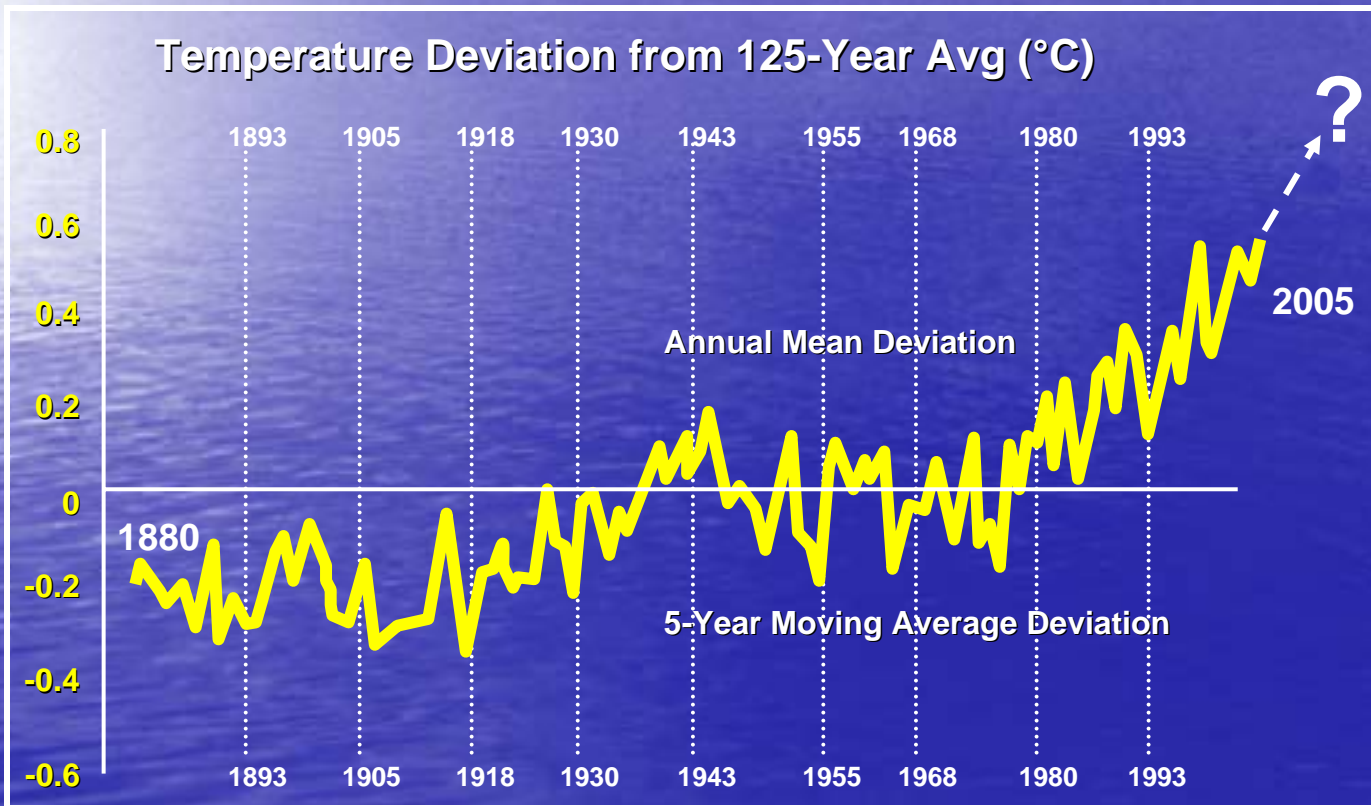


Insecure Sources



Why Greentech?

- Climate Change



We Can't Just Stand There...



The Value of Greentech?

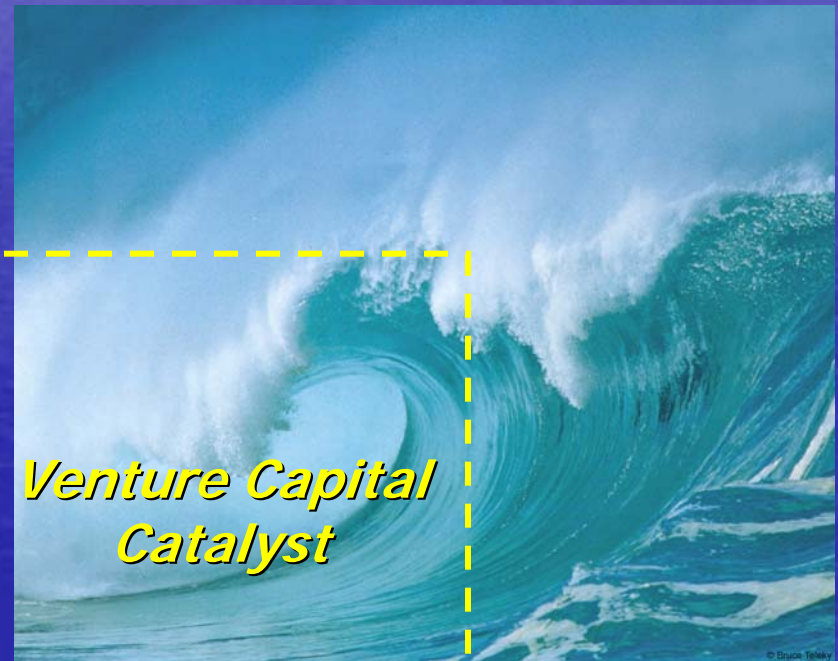
- Good for the Environment and Good for the Economy
- Huge Market Opportunity
 - Global Revenue expected to grow to \$167B over the next decade (source: Clean Edge 2006)
- Fueling Job Growth
 - Every \$100M in greentech venture capital leads directly to the creation of 2700 jobs plus many more indirectly (source: E2 May 2006)
- Potential to be THE next big business for California



California Has Always Been on the Forefront of Big Business Waves

- Gold (1849)
- Agriculture
- Defense
- Entertainment (Traditional)
- Semiconductor
- Nanotech
- Internet
- Entertainment (Online)
- Biotech
- Greentech???

*Significant
Policy Role*

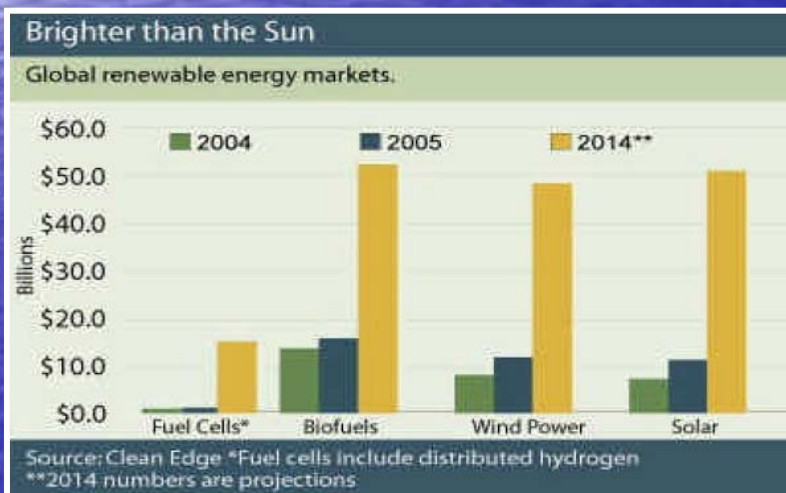
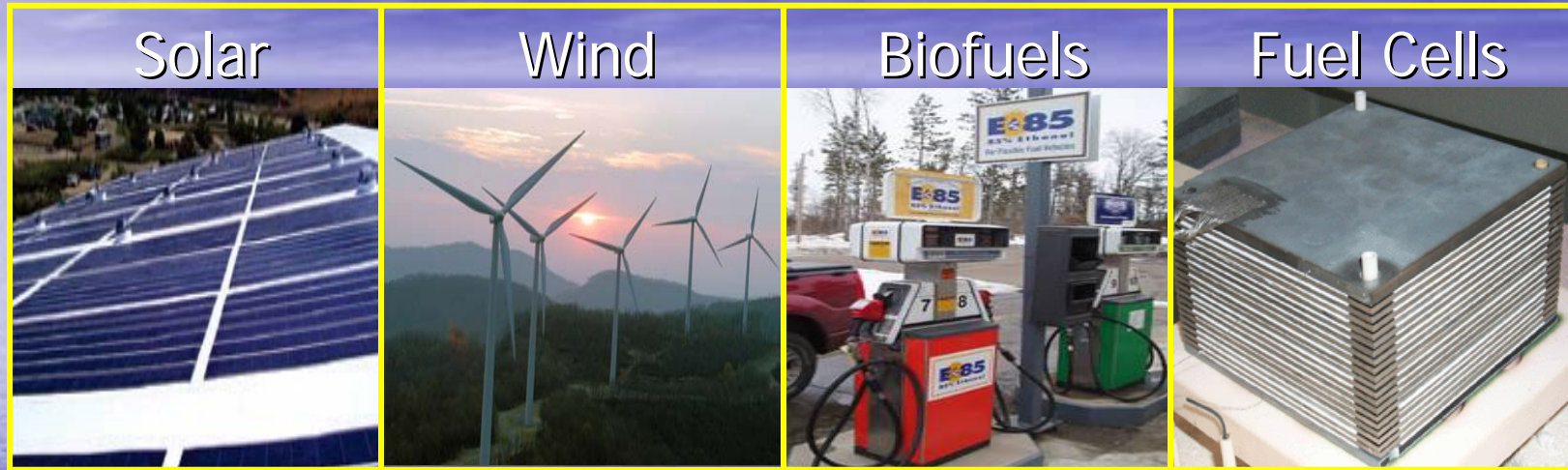


VCs See the Opportunity

- Venture capital investments in greentech reached an all-time high in 2005
 - \$1.6 billion in North America, a 43 percent increase over 2004
- Greentech is now 5th largest venture capital category; surpassing semiconductors
- KPCB views greentech as the biggest opportunity of the 21st century
 - \$100M Greentech Initiative
 - Green Prize for Innovation
 - Greentech Innovation Network



Greentech Investments



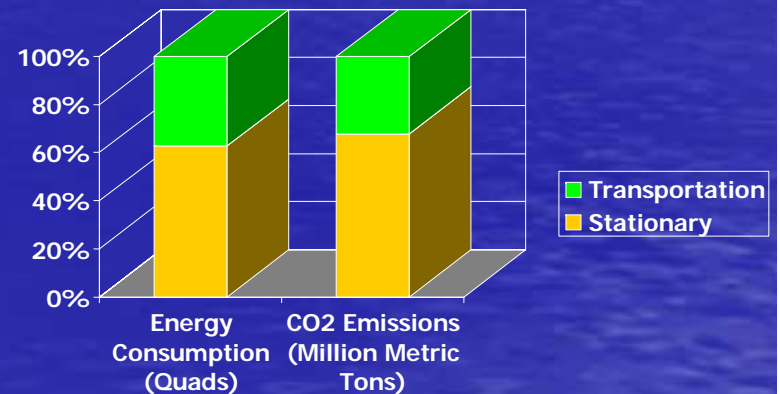
Crossing the Chasm

- Venture capital gets companies to the chasm
- Companies need help crossing
- Role of the Government
 - Consumer (Early Adopter)
 - Customer Incentives (e.g. SGIP)
 - Level Playing Field (vs “legacy” interests)
 - R&D Incentives
 - Promote Local Companies



Making a Difference in California

- Energy Independence = Economic Security
 - California is the 6th largest economy in the world;
Energy drives California's economy
- We need to use our natural resources
 - We don't have much fossil fuel,
but we do have sun, biofuels,
semiconductor know-how,
entrepreneurship
- We need to be smarter
 - Example: 60% of our energy
consumption and 60% of our CO₂
Emissions come from stationary
power. Shouldn't we emphasize
clean stationary generation
solutions?



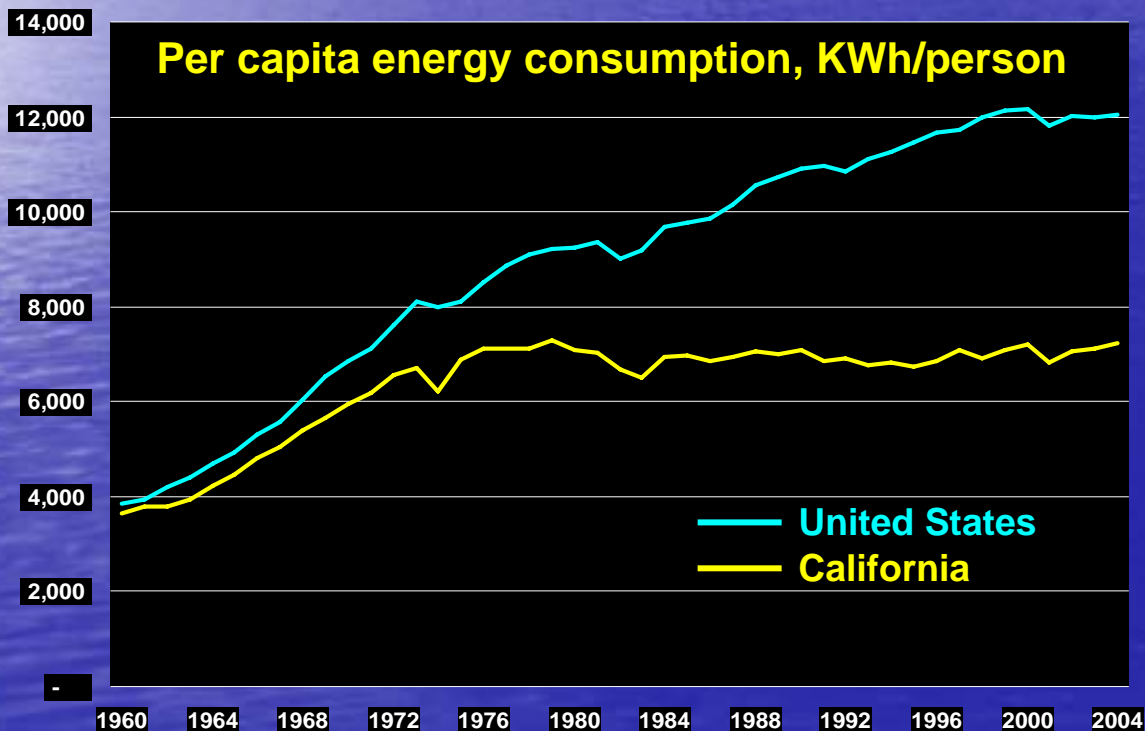
Source: Lawrence Livermore Laboratories 2002 Energy Flow Trends

California Report Card

ENERGY REPORT CARD	
Conservation	A
End-User Efficiency	A
Promote California New Technology	D

California Clean Tech Leadership

- In Conservation and End-User Efficiency California has Lead by Example



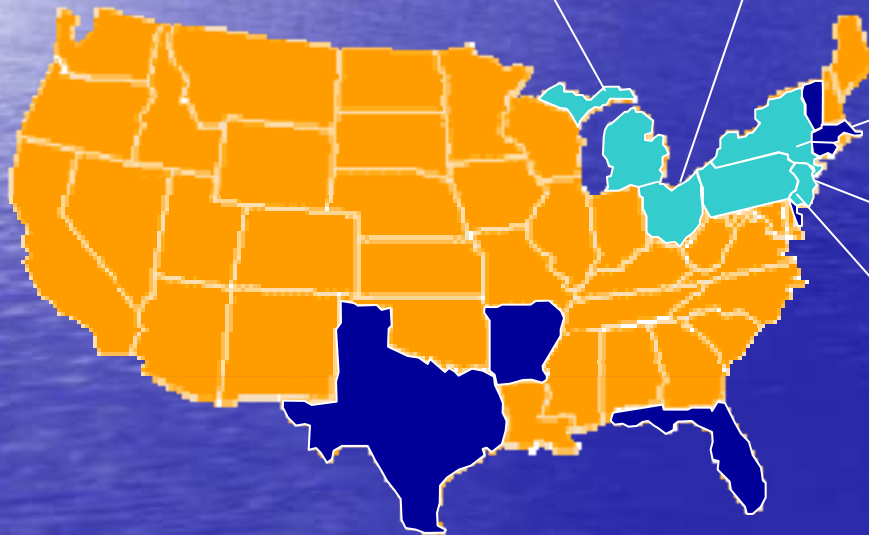
- Green House Gas Emission Standards
- Million Solar Roofs Initiative
- Green Building Initiative
- Renewable Power Portfolio Standards

Where Can California Improve?

- In Supporting Home Grown Technology Companies California has Lagged Other States

- **Michigan** provides tax credits and over \$50 million to Michigan employers in energy technology

- **Ohio** Fuel Cell Initiative provides \$31M for Ohio Fuel Cell companies to create or retain jobs in Ohio



- **New York** Renewable Energy Technology Manufacturing Incentive, and R&D Grant programs supporting NY manufacturers

- **Pennsylvania** Alternative Energy Grants, Loans, and Guarantees for PA companies

- **New Jersey** Renewable Energy Business Venture Assistance Program provides seed capital for NJ ventures

Arkansas, Connecticut, Delaware, Florida, Hawaii, Massachusetts, Texas, and Vermont also have better incentives than California to support their local cleantech companies

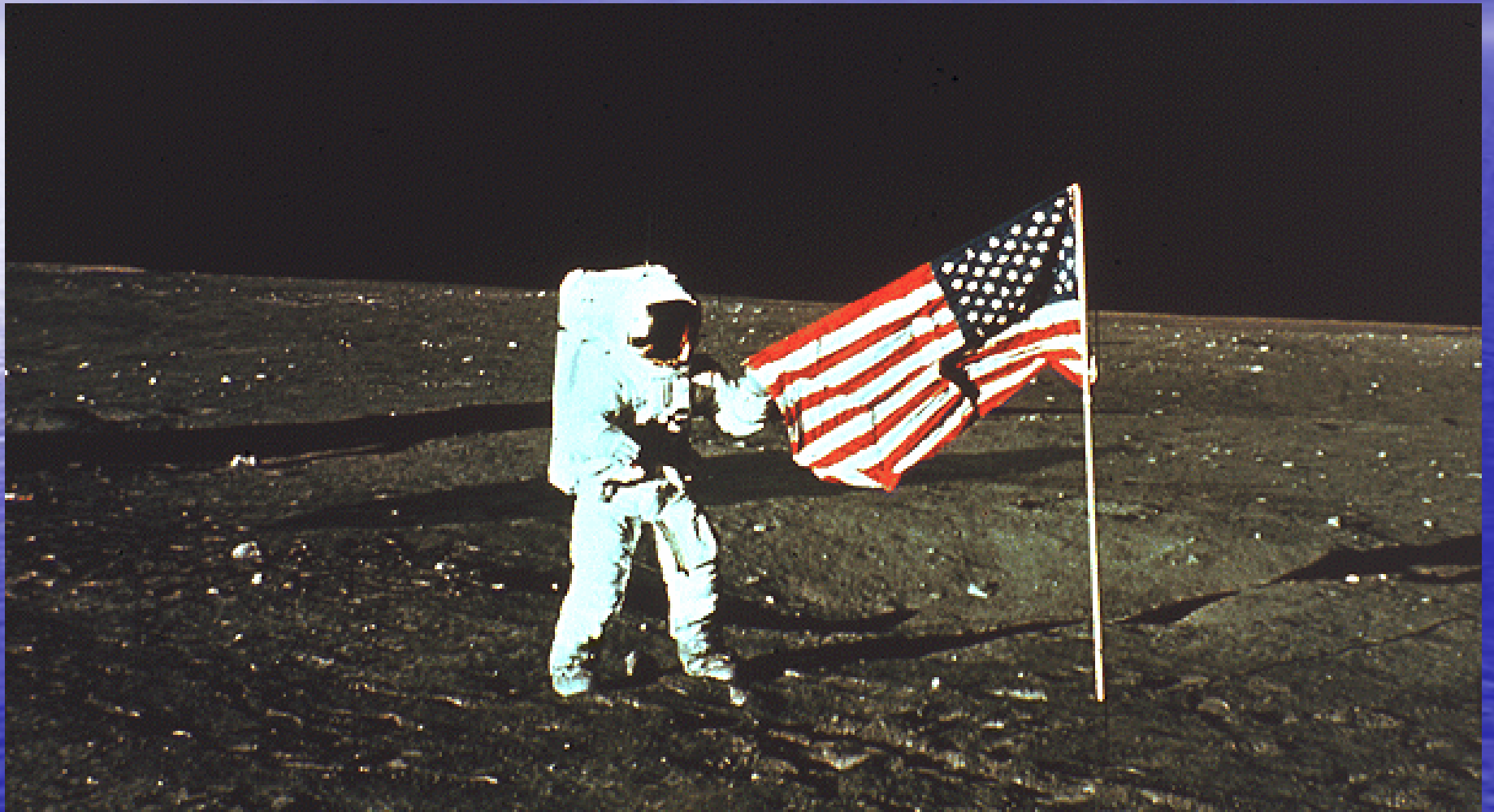
Fostering Energy Diversity in California

- Create a second tier RPS credit for natural gas generated from coal gasification
 - California is highly dependent on natural gas – 51% of electricity generation
 - Natural gas is a clean-burning fuel that generates low green-house gas emissions
 - The U.S. has hit peak production for natural gas, and supply is not keeping up with demand and becoming dependent on imported LNG
 - Alternatively, the U.S. has more coal than any other country in the world
 - We have the technology to convert this dirty fuel into the cleanest of all fuels – natural gas
- We need to promote coal conversion into natural gas and the movement of this gas into California
 - Massachusetts -- alt fuel RPS credit worth \$0.05 per Kwh from SNG

What Can Sacramento Do?

- Set the bar!
 - maintain the highest standards
- Commit to consume alternative energy of all sorts
 - Sometimes paying pre-commercial prices
- Support and promote California companies
 - Keep California dollars in California
 - Consumption, manufacturing, and R&D incentives
- Educate and inspire the public

Greentech is Our Generation's Moon Shot



California Must Lead the Way!

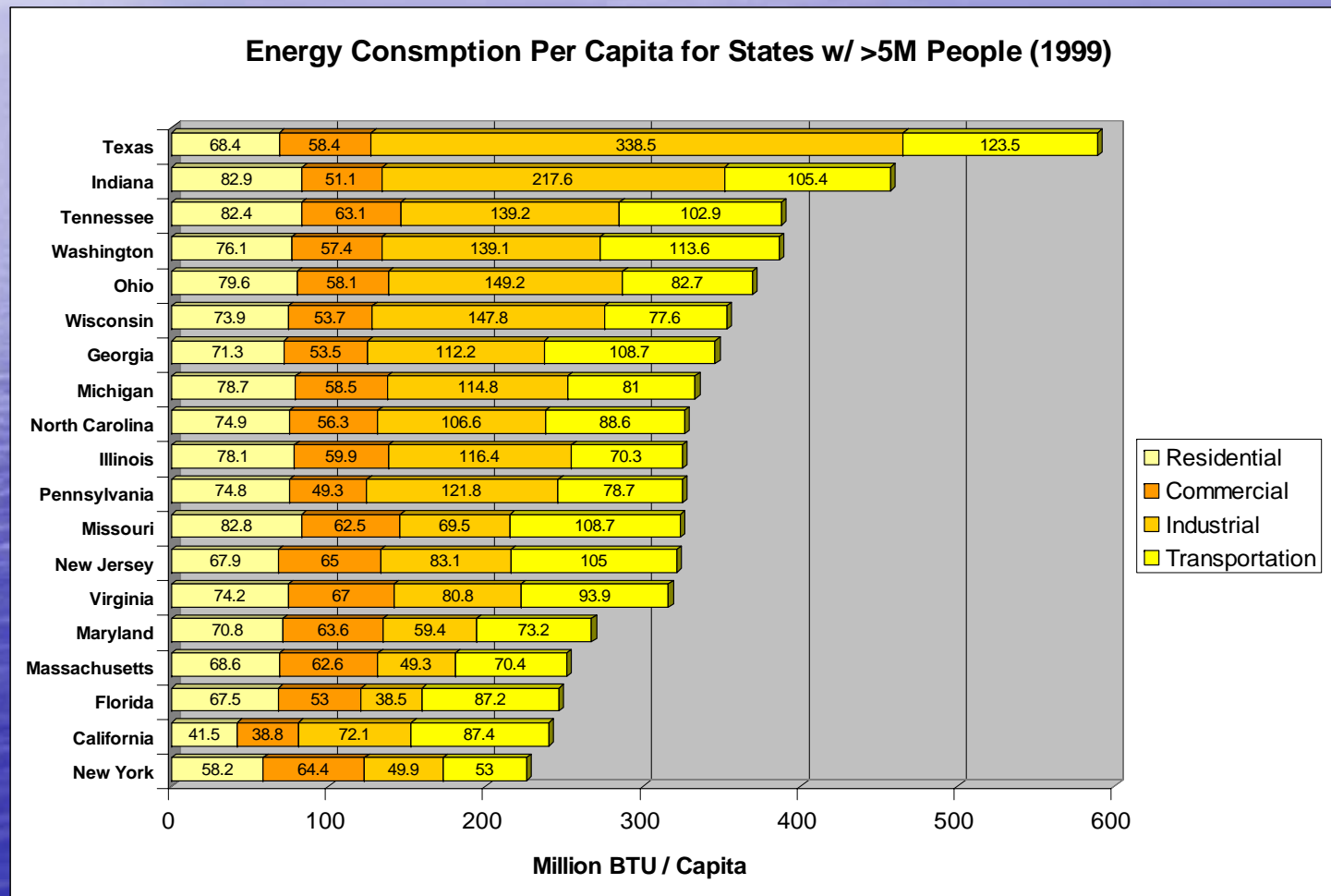




Thank You!

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Energy Consumption Per State



Source: EIA State Energy Data Report 1997